

RECEIVED  
JAN 30 2002  
Technology Center 2600

9. (ONCE AMENDED) A recording medium comprising:

land tracks; and

groove tracks;

wherein

the land tracks and the groove tracks are wobbled,

the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks, and

the wobbles formed of the land tracks and the groove tracks have a phase difference of  $\pi$  with the wobbles of the next other types of tracks.

13. (ONCE AMENDED) A servo controller in an optical recording and/or reproducing apparatus having a pickup unit for tracking an optical recording medium having groove tracks and land tracks, the servo controller comprising:

a photo detector to output as two channels a light signal reflected from the optical recording medium in which wobbles of the groove tracks or the land tracks which are a first type of tracks are out of phase with the wobbles of the next other type of tracks by a predetermined phase difference and the wobbles of the other type of tracks are in phase with the wobbles of the next first type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by  $\pi$ ;

a wobble signal detector to detect a wobble signal from at least one of the two channels;

a wobble signal determiner to determine whether one of the tracks, which is currently tracked by the pickup unit, is a groove track or a land track based on the at least one wobble signal, and to provide a determination signal; and

a controller to generate a control signal for controlling a servo for moving the pickup unit using the determination signal and the detected wobble signal.

19. (ONCE AMENDED) A servo controlling method for an optical recording and/or reproducing apparatus having a pickup unit for tracking an optical recording medium, comprising:

outputting as two channels a light signal reflected from the optical recording medium in which wobbles of groove tracks or land tracks of the recording medium which are a first type of track are out of phase with the wobbles of the next other type of tracks by a predetermined phase difference and the wobbles of the other type of tracks are in phase with the wobbles of the next first type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by  $\pi$ ;

detecting a wobble signal from at least one of the two channels;

determining whether one of the tracks which is currently tracked by the pickup unit, is a groove track or a land track based on the at least one wobble signal to provide a determination signal; and

controlling a servo for moving the pickup unit using the determination signal and the detected wobble signal.

20. (ONCE AMENDED) The method according to claim 19, wherein the detecting of the wobble signal comprises detecting a groove wobble signal and a land wobble signal from a first one of the two channels corresponding to a sum of two signals output from the photo detector in response to the wobbles of the land tracks and the groove tracks being out of phase with the wobbles of the next other types of tracks, the detected groove wobble signal and the land wobble signal being out of phase with respect to each other.

25. (ONCE AMENDED) A recording medium comprising:  
land tracks;  
groove tracks; and  
physical identifier headers formed in centers of the land and groove tracks, respectively;  
wherein the land tracks and groove tracks are wobbled, and the groove tracks have a same frequency as and are out of phase with the land tracks.

35. (ONCE AMENDED) An optical recording and/or reproducing apparatus having a pickup for tracking an optical recording medium and a servo to move the pickup, comprising:  
a photo detector to output two signals in response to a light signal reflected from the optical recording medium in which wobbles of the groove tracks or the land tracks which are a

first type of tracks are out of phase with the wobbles of the next other type of tracks by a predetermined phase difference and the wobbles of the other type of tracks are in phase with the wobbles of the next first type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by  $\pi$ ; and

a servo control unit to determine a wobble signal from the two signals, and in response, generate a control signal to move the servo, wherein the servo control unit comprises:

a wobble signal detector to detect the wobble signal from the two signals,

a wobble signal determiner to determine whether one of the tracks, which is currently tracked by the pickup, is a groove track or a land track based on the wobble signal, to generate a determination signal, and

a controller to generate the control signal based upon the wobble signal and the determination signal.

38. (ONCE AMENDED) An optical recording and/or reproducing apparatus having a pickup for tracking an optical recording medium and a servo to move the pickup, comprising:

a photo detector to output two signals in each of two channels in response to a light signal reflected from the optical recording medium in which wobbles of the groove tracks or the land tracks which are a first type of tracks are out of phase with the wobbles of the next other type of tracks by a predetermined phase difference and the wobbles of the other type of tracks are in phase with the wobbles of the next first type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by  $\pi$ ; and

a servo control unit to determine at least one wobble signal from at least one of the two channels, respectively, and in response, generate a control signal to move the servo, wherein the servo control unit comprises:

a wobble signal detector to detect the at least one wobble signal from the at least one of the two channels,

a wobble signal determiner to determine whether one of the tracks, which is currently tracked by the pickup, is a groove track or a land track based on the at least one wobble signal, to generate a determination signal, and

a controller to generate the control signal based upon the at least one wobble signal and the determination signal.

45. (ONCE AMENDED) A servo controlling method for an optical recording and/or reproducing apparatus having a pickup for tracking a recording medium, the servo controlling method comprising:

outputting two signals in response to a light signal reflected from the optical recording medium in which wobbles of the groove tracks or the land tracks which are a first type of tracks are out of phase with the wobbles of the next other type of tracks by a predetermined phase difference and the wobbles of the other type of tracks are in phase with the wobbles of the next first type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by  $\pi$ ; and

determining a wobble signal from two signals, and in response, generating a control signal to move the servo, wherein the determining of the wobble signal comprises:

detecting the wobble signal from the two signals,

determining whether one of the tracks, which is currently tracked by the pickup, is a groove track or a land track based on the wobble signal, to generate a determination signal, and

generating the control signal based upon the wobble signal and the determination signal.

Please ADD the following NEW claim 55:

55. A recording medium comprising:

land tracks;

groove tracks; and

physical identifier headers which store track numbers and sector numbers and are pre-pitted in centers of corresponding ones of the land tracks and groove tracks;

wherein the land tracks and the groove tracks are wobbled, and the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks.